# Railroad Impact Study


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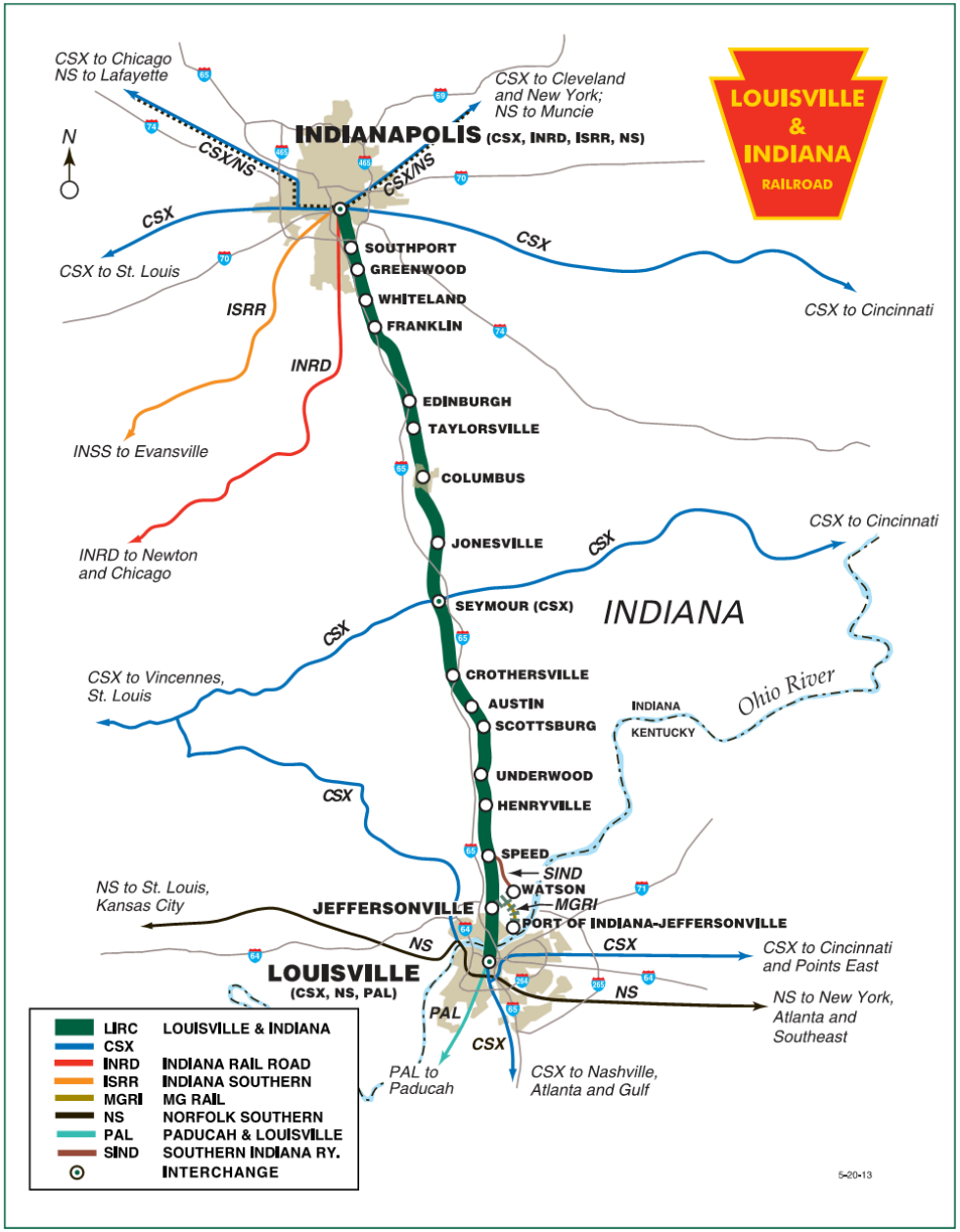
AMERICAN STRUCTUREPOINT INC.

PolicyAnalytics, LLC
RESEARCH. ANALYSIS. RESULTS.

# Study Impetus

- CSXT to lease and improve rail line between Louisville and Indianapolis
- Rail improvements will allow CSXT to make several changes to rail traffic in the corridor
- Changes to rail traffic are expected to be fully implemented by 2018



# Rail Improvements

- Continuously welded rail
  - Smoother ride
  - Higher speeds
- Bridge replacements/upgrades
  - Double Stacked Freight Cars
  - Heavier Loads
  - Flat Rock River Bridge (2017)

Courtesy www.bridgehunter.com

# Rail Traffic Changes

| | | |
|---|---|---|
| Increased Train Volume | Existing | 8 per day |
| | Proposed | 22 per day |
| Increased Train Length | Existing | 5,100 ft |
| | Proposed | 7,500 ft |
| Increased Car Weight | Existing | 263,000 lbs |
| | Proposed | 286,000 lbs |
| Increased Car Height | Existing | Single Stacked |
| | Proposed | Double Stacked |
| Increased Train Speed | Existing (15 mph) | |
| | Proposed (49mph) | |
| | Thru Columbus (15 mph) | |

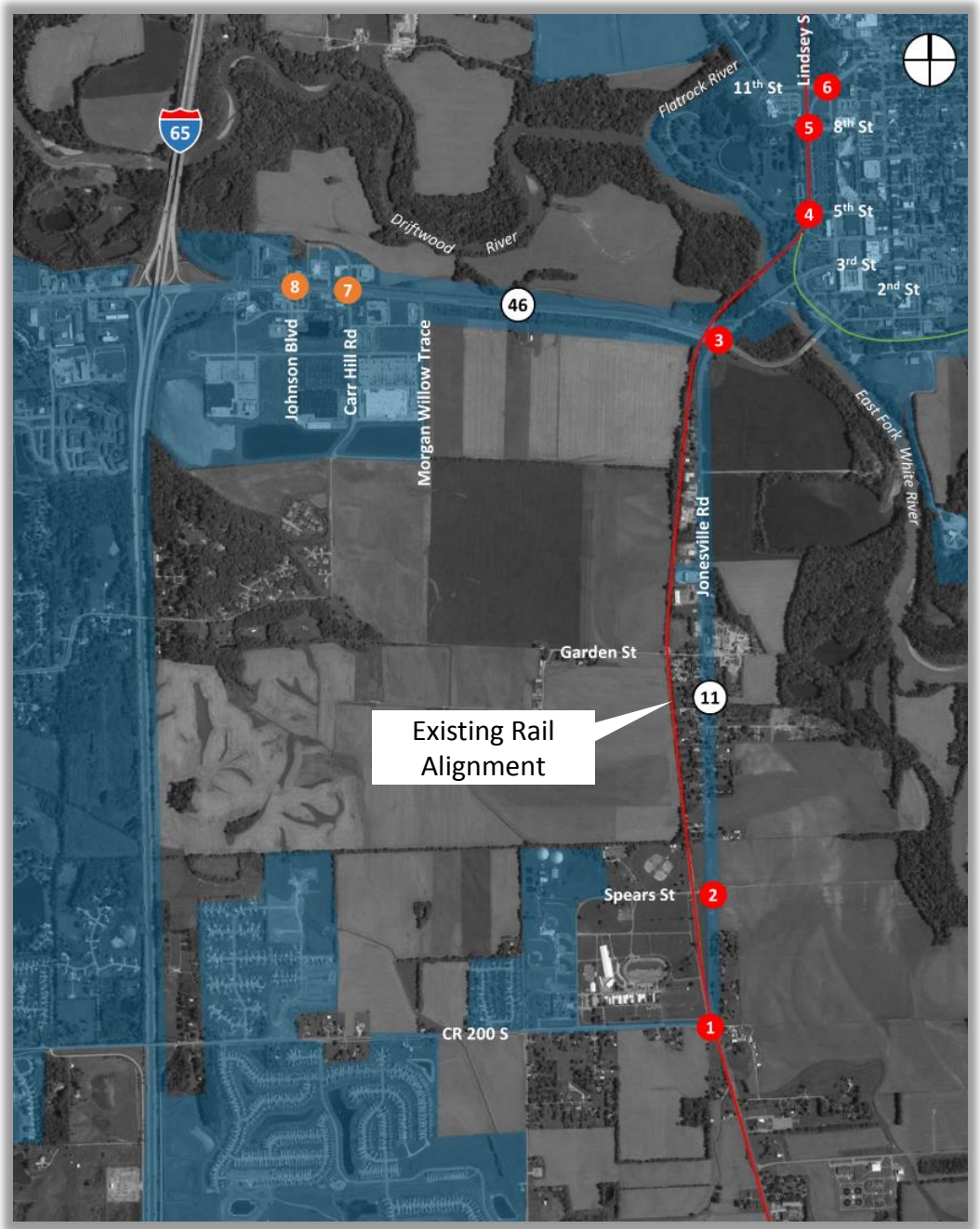
# Environmental Analysis Document

- Surface Transportation Board required CSXT to perform an Environmental Assessment (EA) of the proposed train changes
- 154 RR crossings evaluated in terms of delay
- 3 RR crossings in Columbus ranked in top 25 in terms of most delay

| Crossing | Ranking (in terms of most delay) | |
|---|---|---|
| | Existing | Proposed |
| SR 46 | #4 | #1 |
| 8th Street | #17 | #3 |
| 11th STreet | #21 | #4 |

# RR Impact Study

- Identify Impacts of Train Events
  - Traffic / Travel Time
  - Columbus Economy
- Identify Mitigation Options
  - Traffic / Travel Time
  - Economic Impact
  - Cost of Improvements

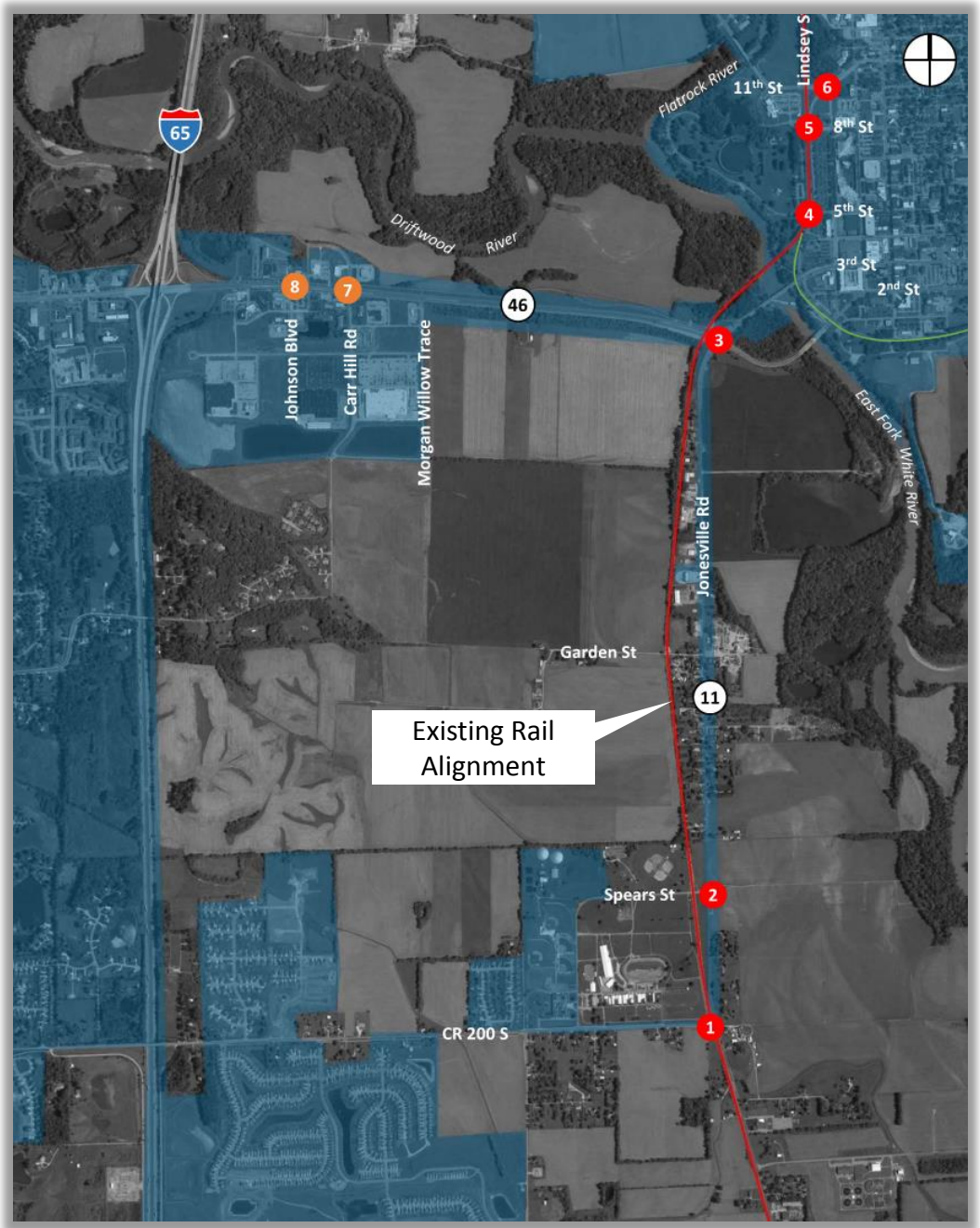



**Legend**

- 1 — Study Intersection With Adjacent Railroad Crossing
- 8 — Study Intersection Without Adjacent RR Crossing
- City Limits
- Mainline Track
- Spur

# Study Area

- Major roadways & crossings
  - CR 200 S
  - Spears Street
  - SR 46
  - 5th Street
  - 8th Street
  - 11th Street
- Intersections along SR 46
  - Johnson Blvd
  - Carr Hill Rd

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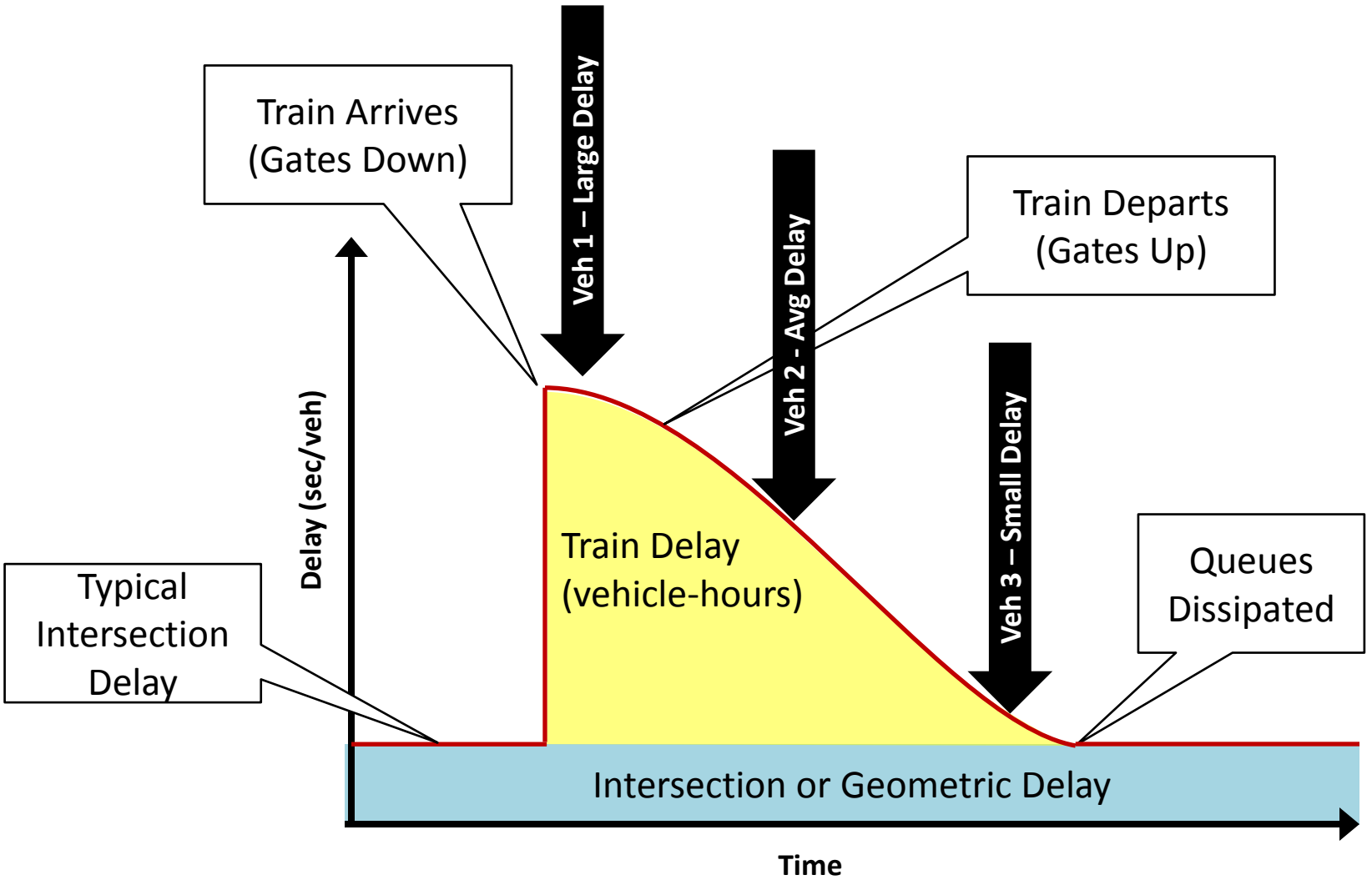
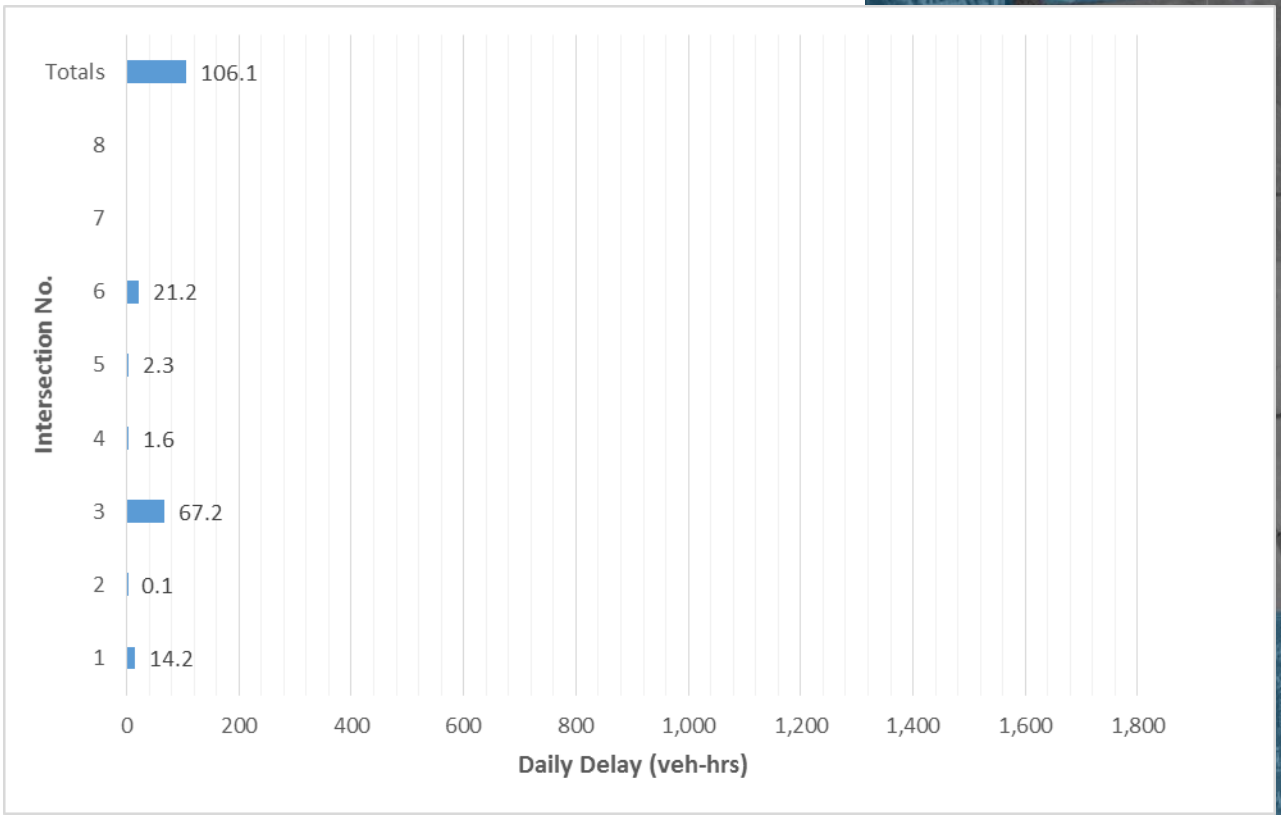
# Train Delay

- Multiple Time Periods
  - AM (6am-10am)
  - Midday (10am-2pm)
  - PM (2pm-6pm)
  - Off-Peak (6pm-6am)
- Multiple Years
  - Current (2016)
  - Opening (2018)
  - Design (2036)
- Use industry accepted methodology & software
  - Highway Capacity Manual
  - PTV VISSIM Software

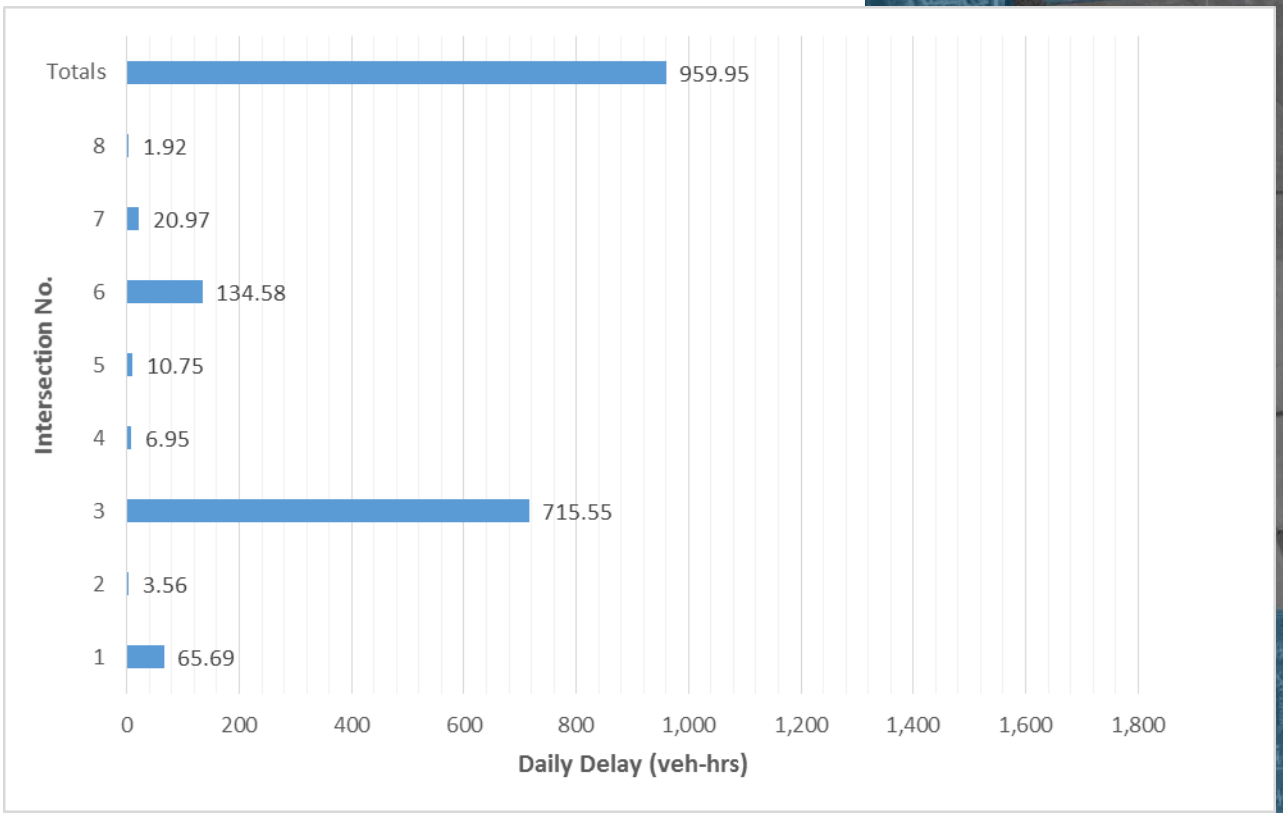
# Train Delay


Train Arrives
(Gates Down)
Veh 1 – Large Delay
Veh 2 - Avg Delay
Train Departs
(Gates Up)
Veh 3 – Small Delay
Queues
Dissipated
Delay (sec/veh)
Train Delay
(vehicle-hours)
Typical
Intersection
Delay
Intersection or Geometric Delay
Time

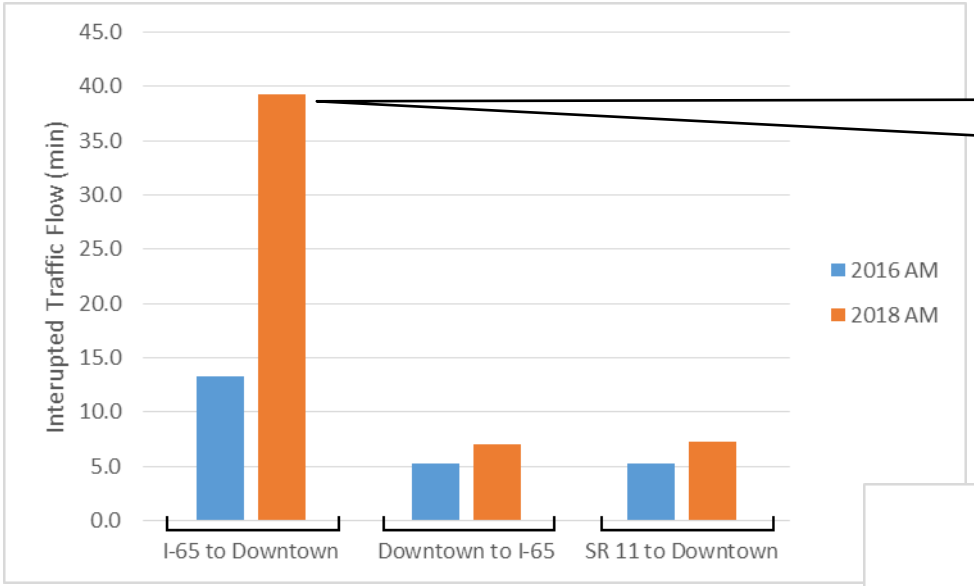
# 2016
# Train Delay
## (Daily Basis)

# 2018
# Train Delay
## (Daily Basis)

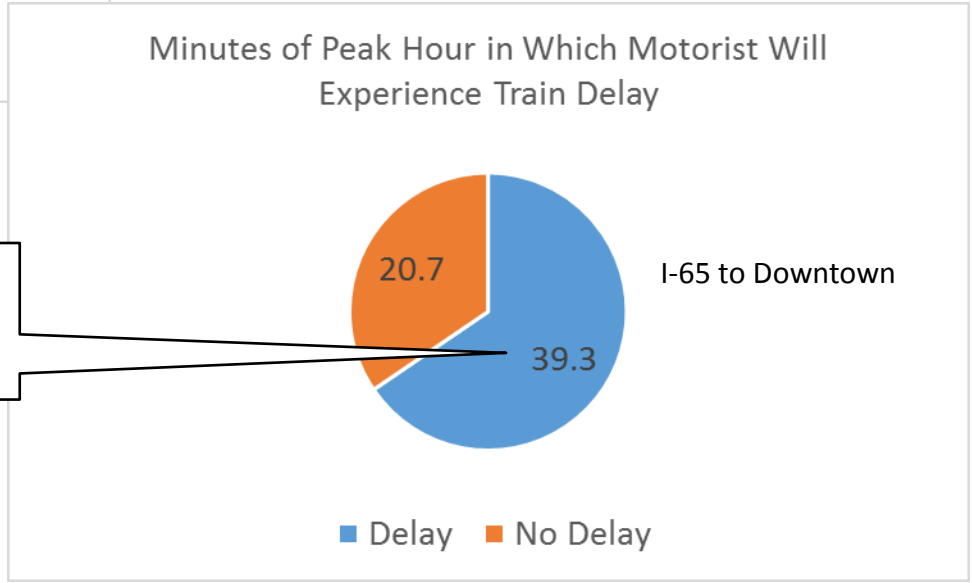



# SR 46 & SR 11 (AM Peak Hour)

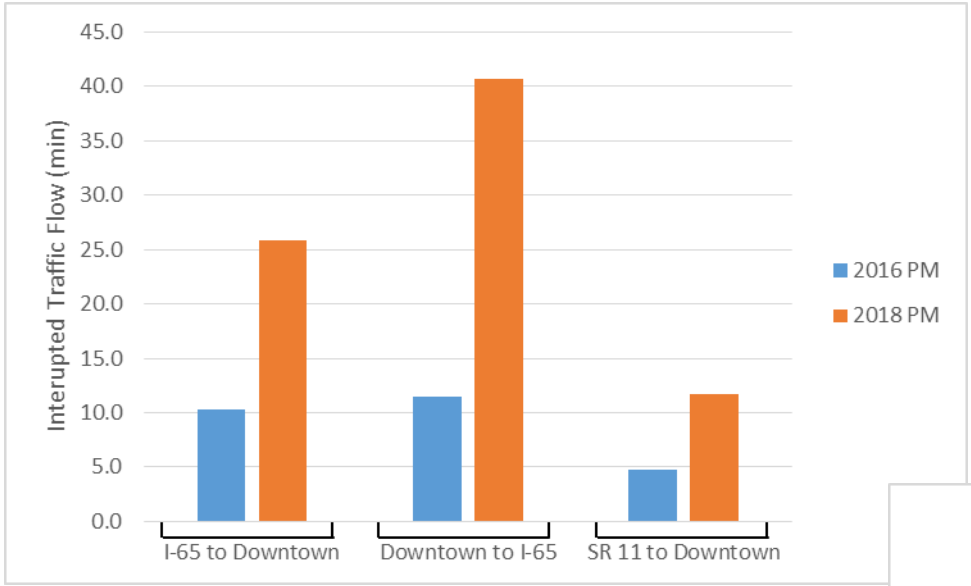


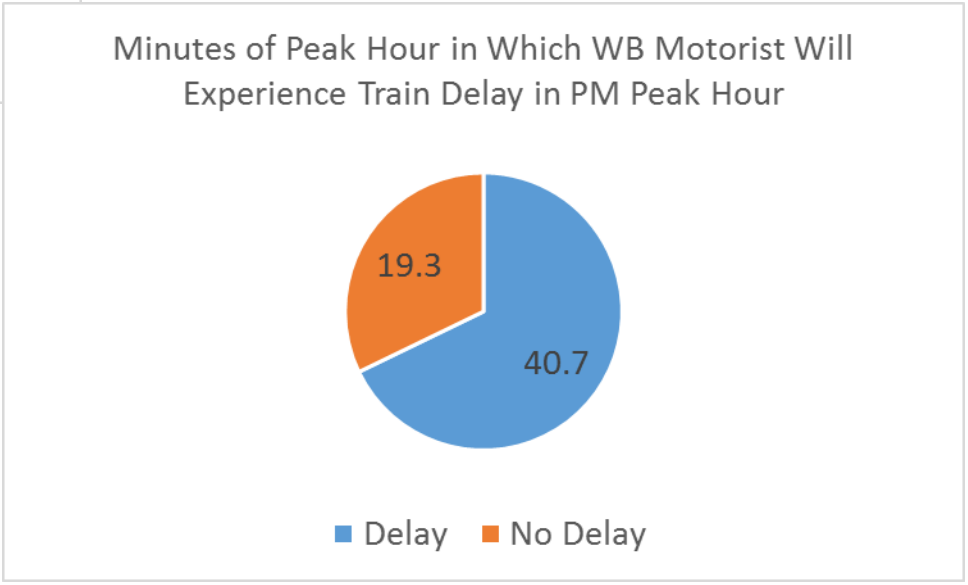

A single train event occurring in peak hour of 2018 will cause queueing along SR 46 for up to 39 min

A motorist traveling to work in the AM peak hour has a 66% chance of being delayed by a train



# SR 46 & SR 11 (PM Peak Hour)



# Traffic Simulations

# Economic Impact of Rail Delay

Events that have positive overall regional benefits can impact local areas negatively. This is known as an externality.

# Local Columbus Impact

Travel delays resulting from increased rail traffic impose costs on the Columbus regional economy.

# Commuter Cost

Individuals commuting to and from work experience longer, and more unpredictable trip times, and more unproductive hours on the road.

# Business Cost

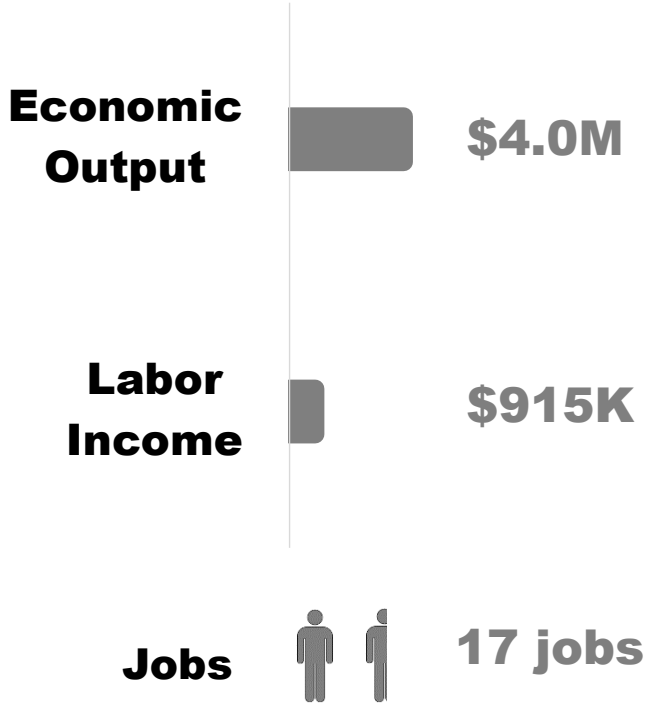
Businesses are affected by increased transportation cost, reduced access to supplies, and delays in inventory control and production.

# Passenger Cost

Individuals who experience delays while traveling for non-business reasons lose time that is valuable to them. This loss can be quantified in economic terms.

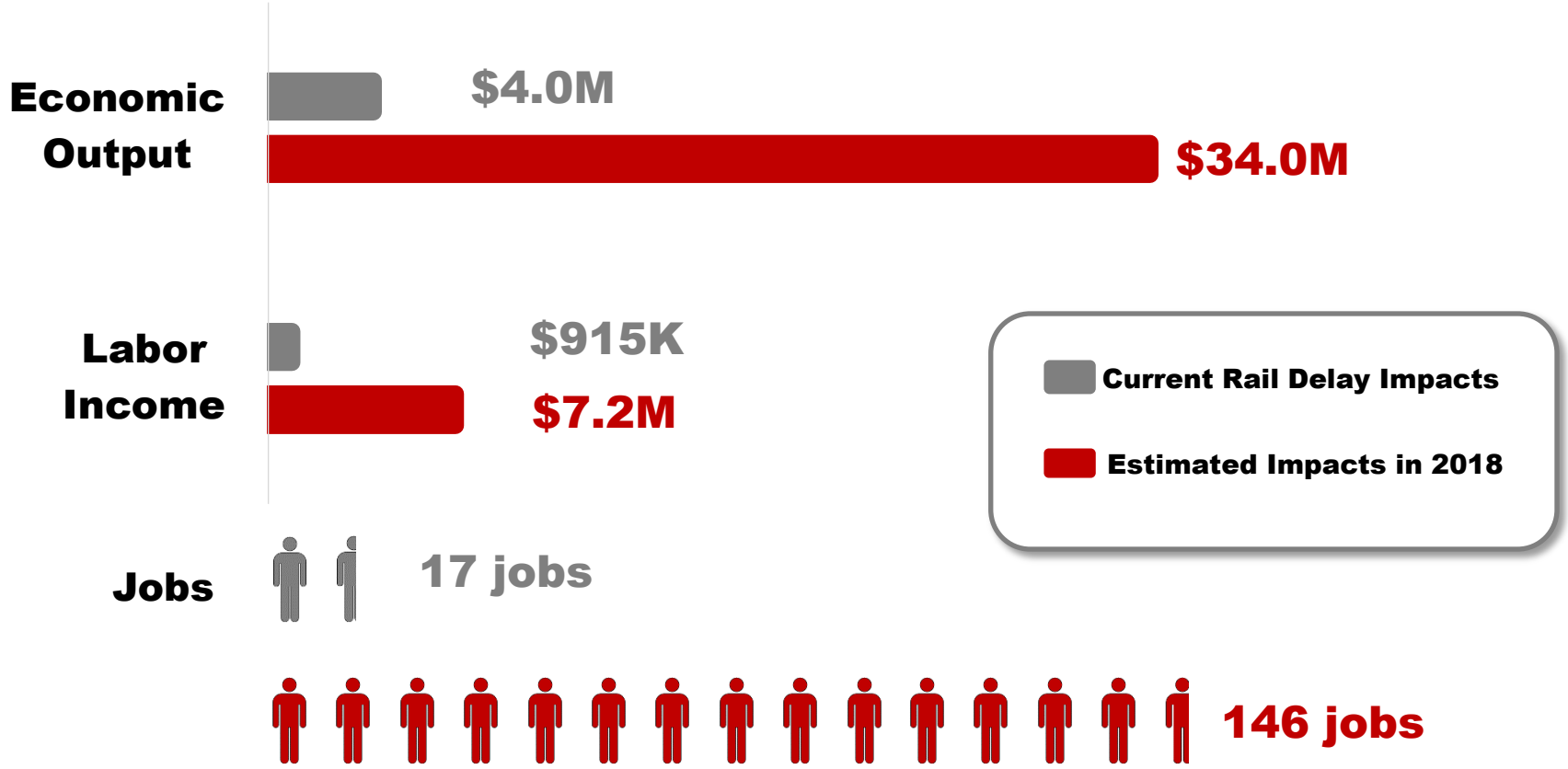
# Base Year Economic Impacts

*Modeled in 2016*

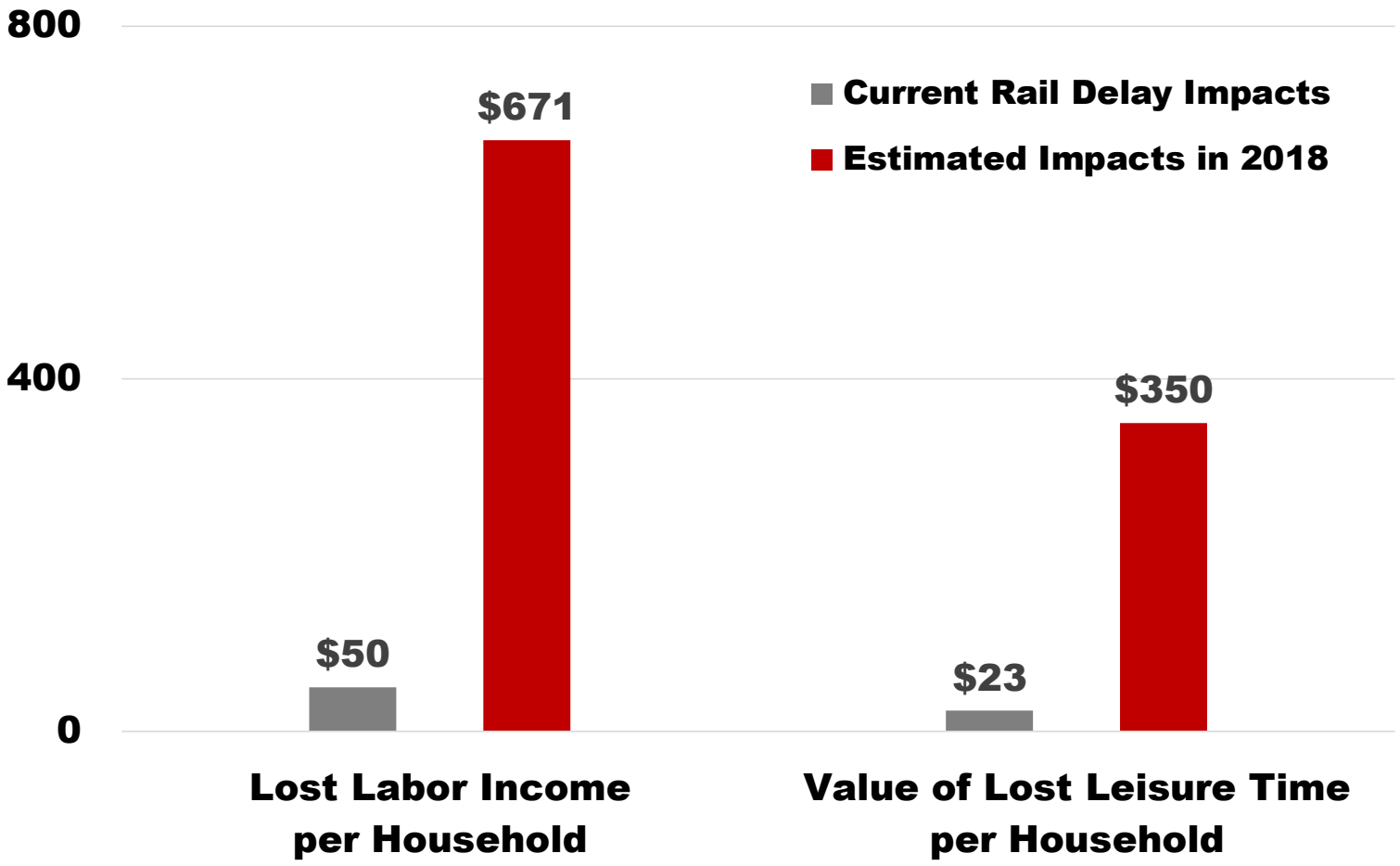


# 2018 Economic Impacts

*After Start of Increased Train Traffic*



# Economic Impacts in Context



# Next Steps

- Develop Alternatives to Mitigate Train Impacts
  - Quantify train delays
  - Determine economic impacts
  - Estimate cost of alternatives

# Questions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